



UNITED STATES PATENT AND TRADEMARK OFFICE

clm

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/620,649	07/20/2000	Cetin Nmi Kaya	TI-23686.1	4313

23494 7590 03/09/2007
TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

WILCZEWSKI, MARY A

ART UNIT	PAPER NUMBER
----------	--------------

2822

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/620,649

Applicant(s)

KAYA, CETIN NMI

Examiner

M. Wilczewski

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 is/are allowed.
- 6) ☒ Claim(s) 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on October 2, 2006, has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12, 13, 15, and 16 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Van Buskirk, U.S. Patent 6,001,689, of record.

Van Buskirk et al. disclose an integrated circuit comprising a floating gate memory array wherein the array comprises a plurality of gate stacks having a channel

Art Unit: 2822

dielectric (61, 62, 63), a polysilicon floating gate (51, 52, 53), a dielectric region disposed outwardly from the floating gate (71, 72, 73), and a polysilicon gate electrode (41, 42, 43), and a plurality of dielectric isolation regions disposed between the gate stacks (26, 27, 28, and 29), see Fig. 2A and column 4, lines 1-10. The structure further comprises trenches and moats (Fig. 7A) formed between the stacks (column 5, lines 35-55). First oxide spacers (120-125) and oxide layer (101) are formed between the gate stacks and subsequently planarized to expose the polysilicon gate (41, 42, 43)(column 5, lines 35-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Buskirk et al. (U.S. Patent 6,001,689) in view of Woo et al. (U. S. Patent 5,926,711).

Van Buskirk et al. is applied as above. Van Buskirk et al. lacks anticipation only of using hemispherical grains of silicon as the floating gate. Woo et al. teach a floating gate transistor wherein the floating gate (24C) is formed of hemispherical grains of silicon (Fig. 3F and column 4, lines 35-55). It would have been obvious to one of

ordinary skill in the art to use a floating gate having hemispherical grains of silicon in order to improve the capacitive coupling of the floating and control gates.

Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Buskirk et al. (U.S. Patent 6,001,689) in view of Chen et al. (U. S. Patent 6,051,467).

Van Buskirk et al. is applied as above. Van Buskirk et al. lacks anticipation only of the thickness of the oxide layer in the ONO integrate dielectric. Chan et al. teach that a typical thickness for the oxide layer in an ONO integrate dielectric is between 50 and 100 angstroms (column 3, lines 40-50). It would have been obvious to one skilled in the art to use an oxide layer having a thickness of 50 to 100 angstroms in the known method of Van Buskirk et al. because it is well known to do so, as evidenced by Chan et al., and because this oxide layer thickness provides sufficient gate separation and capacitive coupling. Further, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose particular thicknesses because Applicant has not disclosed that the claimed thicknesses are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using thicknesses other than those claimed. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

Allowable Subject Matter

Claim 20 is allowable over the prior art of record.

Declaration Under 37 CFR 1.131

The Declaration filed on October 12, 2006, under 37 CFR 1.131 has been considered but is ineffective to overcome the Van Buskirk reference. Applicant has shown conception of the invention prior to the effective date of the reference (January 16, 1998), as evidenced by the filing of the provisional application on September 30, 1997. Nevertheless, proof of this conception must be coupled with proof of due diligence from prior to January 16, 1998, to the filing of the parent application (October 7, 1998). However, Applicant does not provide any evidence establishing due diligence during the relevant time period, which is from just prior to January 16, 1998 to October 7, 1998. That the Applicant missed the statutory deadline for claiming benefit of an earlier filing date under 35 U.S.C. § 119(e) (1) based on the provisional application strongly suggests that due diligence was lacking during at least part of the time period from just prior to the effective date of reference to the filing of the parent application. The Applicant has not identified any persuasive evidence establishing diligence for the seven days from the expiration of the lapsed provisional application to the filing of the parent application. In re Mulder, 716 F.2d 1542, 1545, 219 USPQ 189, 193 (Fed. Cir. 1983) ("A liberal construction of the rule, which is clearly intended to benefit applicants, will permit applicants to show diligence from just prior to the date of the reference to their convention filing date, rather than all the way from their proven conception date,

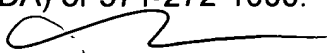
but liberality cannot be extended to the point of eliminating all proof of diligence, no matter how short [two days] the period to be covered.").

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Wilczewski whose telephone number is (571) 272-1849. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



M. Wilczewski
Primary Examiner
Tech Center 2800